

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

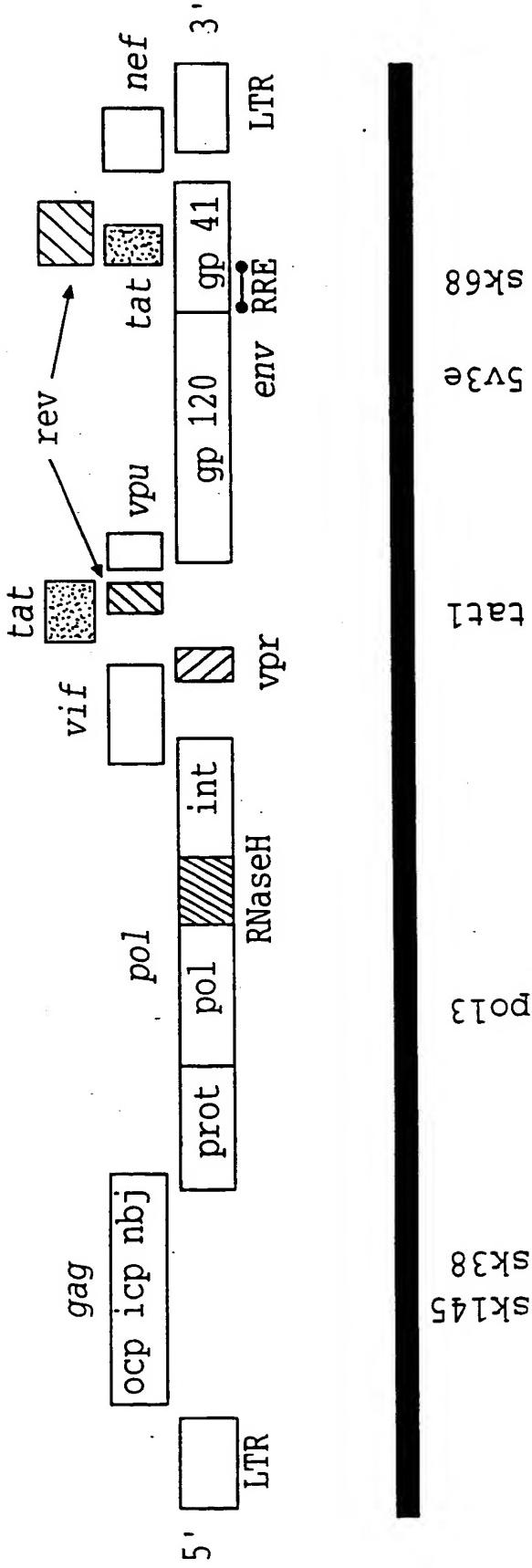
Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

FIG. 1



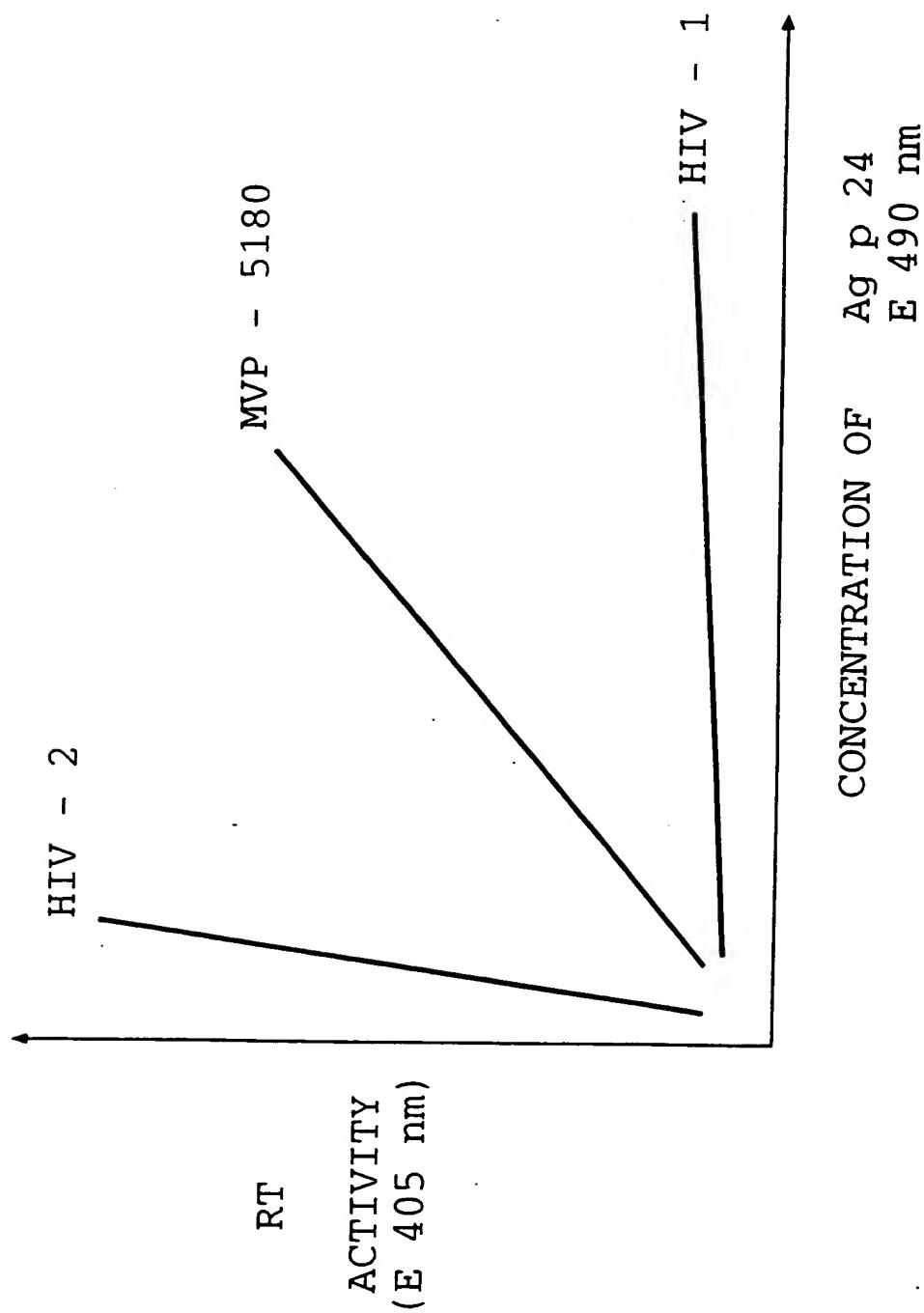
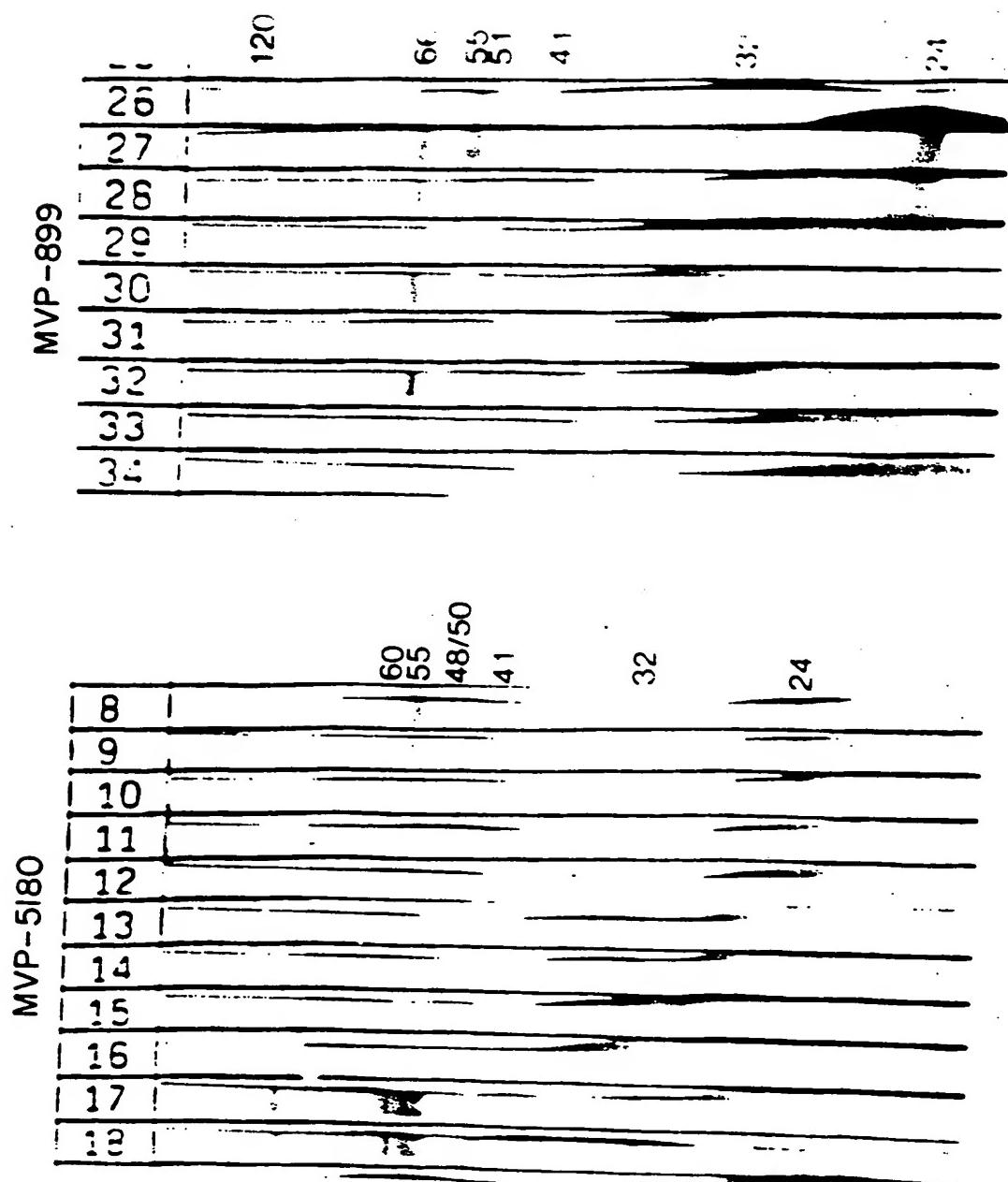


FIG. 2

FIG. 3



SEQUENCE OF MVP-5180

(SEQ. ID NO. 56)

1 CTGGATGGGT TAATTTACTC CCATAAGAGA GCAGAAATCC TGGATCTCTG
51 GATATATCAC ACTCAGGGAT TCTTCCCTGA TTGGCAGTGT TACACACCGG
101 GACCAGGACC TAGATTCCCA CTGACATTTG GATGGTTGTT TAAACTGGTA
151 CCAGTGTCAg CAGAAGAGGC AGAGAGACTG GGTAATACAA ATGAAGATGC
201 TAGTCTTCTA CATCCAGCTT GTAATCATGG AGCTGAGGAT GCACACGGGG
251 AGATACTAAA ATGGCAGTTT GATAGATCAT TAGGCTTAAC ACATATAGCC
301 CTGCAAAAGC ACCCAGAGCT CTTCCCCAAG TAACTGACAC TGCGGGACTT
351 TCCAGACTGC TGACACTGCG GGGACTTTCC AGCGTGGGAG GGATAAGGGG
401 CGGTTCGGGG AGTGGCTAAC CCTCAGATGC TGCATATAAG CAGCTGCTTT
451 CCGCTTGTAC CGGGTCTTAG TTAGAGGACC AGGTCTGAGC CCGGGAGCTC
501 CCTGGCCTCT AGCTGAACCC GCTGCTTAAC GCTCAATAAA GCTTGCCTTG
551 AGTGAGAACG AGTGTGTGCT CATCTGTTCA ACCCTGGTGT CTAGAGATCC
601 CTCAGATCAC TTAGACTGAA GCAGAAAATC TCTAGCAGTG GCGCCCGAAC
651 AGGGACGCGA AAGTGAAAGT GGAACCAGGG AAGAAAACCT CCGACGCAAC
701 GGGCTCGGCT TAGCGGAGTG CACCTGCTAA GAGGCGAGAG GAACTCACAA
751 GAGGGTGAGT AAATTGCTG GCGGTGGCCA GACCTAGGGG AAGGGCGAAC
801 TCCCTAGGGG AGGAAGATGG GTGCGAGAGC GTCTGTGTTG ACAGGGAGTA
851 AATTGGATGC ATGGGAACGA ATTAGGTTAA GGCCAGGATC TAAAAAGGCA
901 TATAGGCTAA AACATTTAGT ATGGGCAAGC AGGGAGCTGG AAAGATACGC
951 ATGTAATCCT GGTCTATTAG AAACTGCAGA AGGTACTGAG CAACTGCTAC
1001 AGCAGTTAGA GCCAGCTCTC AAGACAGGGT CAGAGGACCT GAAATCTCTC
1051 TGGAACGCAA TAGCAGTACT CTGGTGCCTT CACAACAGAT TTGACATCCG
1101 AGATACACAG CAGGCAATAC AAAAGTTAAA GGAAGTAATG GCAAGCAGGA
1151 AGTCTGCAGA GGCCGCTAAG GAAGAAACAA GCCCTAGGCA GACAAGTCAA
1201 AATTACCCTA TAGTAACAAA TGCACAGGGA CAAATGGTAC ATCAAGCCAT

FIG. 4-1

1251 CTCCCCCAGG ACTTTAAATG CATGGTAAA GGCAGTAGAA GAGAAGGCCT
1301 TTAACCTGA AATTATTCT ATGTTTATGG CATTATCAGA AGGGGCTGTC
1351 CCCTATGATA TCAATACCAT GCTGAATGCC ATAGGGGGAC ACCAAGGGC
1401 TTTACAAGTG TTGAAGGAAG TAATCAATGA GGAAGCAGCA GAATGGGATA
1451 GAACTCATCC ACCAGCAATG GGGCCGTTAC CACCAGGGCA GATAAGGGAA
1501 CCAACAGGAA GTGACATTGC TGGAACAACT AGCACACAGC AAGAGCAAAT
1551 TATATGGACT ACTAGAGGGG CTAACTCTAT CCCAGTAGGA GACATCTATA
1601 GAAAATGGAT AGTGCTAGGA CTAAACAAAA TGTTAAAAAT GTACAGTCCA
1651 GTGAGCATCT TAGATATTAG GCAGGGACCA AAAGAACCAT TCAGAGATT
1701 TGTAGATCGG TTTTACAAAA CATTAAGAGC TGAGCAAGCT ACTCAAGAAG
1751 TAAAGAATTG GATGACAGAA ACCTTGCTTG TTCAGAATTG AAACCCAGAT
1801 TGTAAACAAA TTCTGAAAGC ATTAGGACCA GAAGCTACTT TAGAAGAAAT
1851 GATGGTAGCC TGTCAAGGAG TAGGAGGGCC AACTCACAAG GCAAAATAC
1901 TAGCAGAACGC AATGGCTTCT GCCCAGCAAG ATTTAAAAGG AGGATACACA
1951 GCAGTATTCA TGCAAAGAGG GCAGAATCCA AATAGAAAAG GGCCCATAAA
2001 ATGCTTCAAT TGTGGAAAAG AGGGACATAT AGCAAAAAAC TGTCGAGCAC
2051 CTAGAAAAAG GGGTTGCTGG AAATGTGGAC AGGAAGGTCA CCAAATGAAA
2101 GATTGCAAAA ATGGAAGACA GGCAAATTT TTAGGGAAGT ACTGGCCTCC
2151 GGGGGGCACG AGGCCAGGCA ATTATGTGCA GAAACAAGTG TCCCCATCAG
2201 CCCCCACCAAT GGAGGAGGCA GTGAAGGAAC AAGAGAATCA GAGTCAGAAG
2251 GGGGATCAGG AAGAGCTGTA CCCATTGCC TCCCTCAAAT CCCTCTTGG
2301 GACAGACCAA TAGTCACAGC AAAGGTTGGG GGTCACTAT GTGAGGCTTT
2351 ACTGGATACA GGGGCAGATG ATACAGTATT AAATAACATA CAATTAGAAG
2401 GAAGATGGAC ACCAAAAATG ATAGGGGTA TAGGAGGCTT TATAAAAGTA
2451 AAAGAGTATA ACAATGTGAC AGTAGAAGTA CAAGGAAAGG AAGTACAGGG
2501 AACAGTATTG GTGGGACCTA CTCCGTAA TATTCTTGGG AGAAACATAT
2551 TGACAGGATT AGGATGTACA CTAAATTCC CTATAAGTCC CATAGCCCCA

FIG. 4-2

2601 GTGCCAGTAA AGCTAAAACC AGGAATGGAT GGACCAAAAG TAAAACAATG
2651 GCCCCTATCT AGAGAGAAAA TAGAAGCACT AACTGCAATA TGTCAAGAAA
2701 TGGAACAGGA AGGAAAAATC TCAAGAATAG GACCTGAAAA TCCTTATAAT
2751 ACACCTATT TTGCTATAAA AAAGAAAGAT AGCACTAAGT GGAGAAAATT
2801 GGTAGACTTC AGAGAATTAA ATAAAAGAAC ACAAGATTTC TGGGAGGTGC
2851 AATTAGGTAT TCCACATCCA GGGGGTTAA AGCAAAGGCA ATCTGTTACA
2901 GTCTTAGATG TAGGAGATGC TTATTCCTCA TGCCCTTAG ATCCAGACTT
2951 TAGAAAATAC ACTGCCTTCA CTATTCCTAG TGTGAACAAT GAGACCCCAG
3001 GAGTAAGATA CCAGTACAAT GTCCTCCCGC AAGGGTGGAA AGGTTCACCA
3051 GCCATATTTC AGAGTTCAAT GACAAAGATT CTAGATCCAT TTAGAAAAAG
3101 CAACCCAGAA GTAGAAATT ATCAAGTACAT AGATGACTTA TATGTAGGAT
3151 CAGATTTACC ATTGGCAGAA CATAGAAAGA GGGTCGAATT GCTTAGGGAA
3201 CATTATATC AGTGGGGATT TACTACCCCT GATAAAAAGC ATCAGAAGGA
3251 ACCTCCCTTT TTATGGATGG GATATGAGCT CCACCCAGAC AAGTGGACAG
3301 TACAGCCCCT CCAATTGCCT GACAAAGAAG TGTGGACAGT AAATGATATA
3351 CAAAAATTAG TAGGAAAATT AAATTGGGCA AGTCAAATCT ATCAAGGAAT
3401 TAGAGTAAAA GAATTGTGCA AGTTAATCAG AGGAACCAAA TCATTGACAG
3451 AGGTAGTACC TTTAAGTAAA GAGGCAGAAC TAGAATTAGA AGAAAACAGA
3501 GAAAAGCTAA AAGAGCCAGT ACATGGAGTA TATTACCAGC CTGACAAAGA
3551 CTTGTGGGTT AGTATTTCAGA AGCATGGAGA AGGGCAATGG ACTTACCAGG
3601 TATATCAGGA TGAACATAAG AACCTTAAAA CAGGAAAATA TGCTAGGCAA
3651 AAGGCCTCCC ACACAAATGA TATAAGACAA TTGGCAGAAC TAGTCCAGAA
3701 GGTGTCTCAA GAAGCTATAG TTATATGGGG GAAATTACCT AAATTCAAGGC
3751 TGCCAGTTAC TAGAGAAACT TGGGAAACTT GGTGGGCAGA ATATTGGCAG
3801 GCCACCTGGA TTCCTGAATG GGAATTGTC AGCACACCCC CATTGATCAA
3851 ATTATGGTAC CAGTTAGAAA CAGAACCTAT TGTAGGGGCA GAAACCTTTT
3901 ATGTAGATGG AGCAGCTAAT AGGAATACAA AACTAGGAAA GGCGGGATAT

FIG. 4-3

3951 GTTACAGAAC AAGGAAAACA GAACATAATA AAGTTAGAAG AGACAACCAA
4001 TCAAAAGGCT GAATTAATGG CTGTATTAAT AGCCTTGCAG GATTCCAAGG
4051 AGCAAGTAAA CATAGTAACA GACTCACAAAT ATGTATTGGG CATCATATCC
4101 TCCCCAACCAA CACAGAGTGA CTCCCCATA GTTCAGCAGA TAATAGAGGA
4151 ACTAACAAAA AAGGAACGAG TGTATCTTAC ATGGGTTCCCT GCTCACAAAG
4201 GCATAGGAGG AAATGAAAAA ATAGATAAAAT TAGTAAGCAA AGACATTAGA
4251 AGAGTCCTGT TCCTGGAAGG AATAGATCAG GCACAAGAAG ATCATGAAAA
4301 ATATCATAGT AATTGGAGAG CATTAGCTAG TGACTTTGGA TTACCACCAA
4351 TAGTAGCCAA GGAAATCATT GCTAGTTGTC CTAAATGCCA TATAAAAGGG
4401 GAAGCAACGC ATGGTCAAGT AGACTACAGC CCAGAGATAT GGCAAATGGA
4451 TTGTACACAT TTAGAAGGCA AAATCATAAT AGTTGCTGTC CATGTAGCAA
4501 GTGACTTTAT AGAAGCAGAG GTGATACCAG CAGAACAGG ACAGGAAACT
4551 GCCTATTTCC TGTTAAAATT AGCAGCAAGA TGGCCTGTCA AAGTAATACA
4601 TACAGACAAT GGACCTAATT TTACAAGTGC AGCCATGAAA GCTGCATGTT
4651 GGTGGACAGG CATAAACACAT GAGTTGGGA TACCATATAA TCCACAAAGT
4701 CAAGGAGTAG TAGAAGCCAT GAATAAAGAA TTAAAATCTA TTATACAGCA
4751 GGTGAGGGAC CAAGCAGAGC ATTTAAAAAC AGCAGTACAA ATGGCAGTCT
4801 TTGTTCACAA TTTTAAAAGA AAAGGGGGGA TTGGGGGGTA CACTGCAGGG
4851 GAGAGACTAA TAGACATACT AGCATCACAA ATACAAACAA CAGAACTACA
4901 AAAACAAATT TTAAAAATCA ACAATTTCG GGTCTATTAC AGAGATAGCA
4951 GAGACCTAT TTGGAAAGGA CCGGCACAAC TCCTGTGGAA AGGTGAGGGG
5001 GCAGTAGTCA TACAAGATAA AGGAGACATT AAAGTGGTAC CAAGAAGAAA
5051 GGCAAAATA ATCAGAGATT ATGGAAAACA GATGGCAGGT ACTGATAGTA
5101 TGGCAAATAG ACAGACAGAA AGTGAAGCA TGGAACAGCC TGGTGAAATA
5151 CCATAAAATAC ATGTCTAAGA AGGCCGCGAA CTGGCGTTAT AGGCATCATT
5201 ATGAATCCAG GAATCCAAAA GTCAGTTCGG CGGTGTATAT TCCAGTAGCA
5251 GAAGCTGATA TAGTGGTCAC CACATATTGG GGATTAATGC CAGGGGAAAG

FIG. 4-4

5301 AGAGGAACAC TTGGGACATG GGGTTAGTAT AGAATGGCAA TACAAGGAGT
5351 ATAAAACACA GATTGATCCT GAAACAGCAG ACAGGATGAT ACATCTGCAT
5401 TATTCACAT GTTTACAGA ATCAGCAATC AGGAAGGCCA TTCTAGGGCA
5451 GAGAGTGCTG ACCAAGTGTG AATACCTGGC AGGACATAGT CAGGTAGGGA
5501 CACTACAATT CTTAGCCTTG AAAGCAGTAG TGAAAGTAAA AAGAAATAAG
5551 CCTCCCCTAC CCAGTGTCCA GAGATTAACA GAAGATAGAT GGAACAAGCC
5601 CTGGAAAATC AGGGACCAGC TAGGGAGCCA TTCAATGAAT GGACACTAGA
5651 GCTCCTGGAA GAGCTGAAAG AAGAACAGT AAGACATTTC CCTAGGCCTT
5701 GGTTACAAGC CTGTGGGCAG TACATTTATG AGACTTATGG AGACACTTGG
5751 GAAGGAGTTA TGGCAATTAT AAGAATCTTA CAACAACTAC TGTTTACCCA
5801 TTATAGAATT GGATGCCAAC ATAGTAGAAT AGGAATTCTC CCATCTAACCA
5851 CAAGAGGAAG AGGAAGAAGA AATGGATCCA GTAGATCCTG AGATGCCCG
5901 TTGGCATCAC CCTGGGAGCA AGCCCCAAC CCCTTGTAAAT AATTGCTATT
5951 GCAAAAGATG CTGCTATCAT TGCTATGTT GTTCACAAA GAAGGGTTTG
6001 GGAATCTCCC ATGGCAGGAA GAAGCGAAGA AGACCAGCAG CTGCTGCAAG
6051 CTATCCAGAT AATAAAGATC CTGTACCAGA GCAGTAAGTA ACGCTGATGC
6101 ATCAAGAGAA CCTGCTAGCC TTAATAGCTT TAAGTGCTT GTGTCTTATA
6151 AATGTACTTA TATGGTTGTT TAACCTTAGA ATTTATTTAG TGCAAAGAAA
6201 ACAAGATAGA AGGGAGCAGG AAATACTTGA AAGATTAAGG AGAATAAAGG
6251 AAATCAGGGA TGACAGTGAC TATGAAAGTA ATGAAGAAGA ACAACAGGAA
6301 GTCATGGAGC TTATACATAG CCATGGCTT GCTAATCCCA TGTTGAGTT
6351 ATAGTAAACA ATTGTATGCC ACAGTTTATT CTGGGGTACC TGTATGGGAA
6401 GAGGCAGCAC CAGTACTATT CTGTGCTTCA GATGCTAACCC TAACAAGCAC
6451 TGAACAGCAT AATATTGGG CATCACAAGC CTGCGTTCCCT ACAGATCCCA
6501 ATCCACATGA ATTTCCACTA GGCAATGTGA CAGATAACTT TGATATATGG
6551 AAAAATTACA TGGTGGACCA AATGCATGAA GACATCATTA GTTGTGGGA
6601 ACAGAGTTA AAGCCTTGTG AGAAAATGAC TTTCTTATGT GTACAAATGA

FIG. 4-5

6651 ACTGTGTAGA TCTGCAAACA AATAAAACAG GCCTATTAAA TGAGACAATA
6701 AATGAGATGA GAAATTGTAG TTTTAATGTA ACTACAGTCC TCACAGACAA
6751 AAAGGAGCAA AAACAGGCTC TATTCTATGT ATCAGATCTG AGTAAGGTTA
6801 ATGACTCAAA TGCAGTAAAT GGAACAACAT ATATGTTAAC TAATTGTAAC
6851 TCCACAATT A TCAAGCAGGC CTGTCCGAAG GTAAGTTTG AGCCCATTCC
6901 CATAACTAT TGTGCTCCAA CAGGATATGC CATCTTAAG TGTAATGACA
6951 CAGACTTTAA TGGAACAGGC CTATGCCACA ATATTCAGT GGTTACTTGT
7001 ACACATGGCA TCAAGCCAAC AGTAAGTACT CAACTAATAC TGAATGGGAC
7051 ACTCTCTAGA GAAAAGATAA GAATTATGGG AAAAAATATT ACAGAATCAG
7101 CAAAGAATAT CATAGTAACC CTAAACACTC CTATAAACAT GACCTGCATA
7151 AGAGAAGGAA TTGCAGAGGT ACAAGATATA TATACAGGTC CAATGAGATG
7201 GCGCAGTATG ACACTTAAAAA GAAGTAACAA TACATCACCA AGATCAAGGG
7251 TAGCTTATTG TACATATAAT AAGACTGTAT GGGAAAATGC CCTACAACAA
7301 ACAGCTATAA GGTATTAAA TCTTGTAAAC CAAACAGAGA ATGTTACCAT
7351 AATATTCAAGC AGAACTAGTG GTGGAGATGC AGAAGTAAGC CATTACATT
7401 TTAACTGTCA TGGAGAATT C TTTTATTGTA ACACATCTGG GATGTTAAC
7451 TATACTTTA TCAACTGTAC AAAGTCCGGA TGCCAGGAGA TCAAAGGGAG
7501 CAATGAGACC AATAAAATG GTACTATACC TTGCAAGTTA AGACAGCTAG
7551 TAAGATCATG GATGAAGGGA GAGTCGAGAA TCTATGCACC TCCCACCCCC
7601 GGCAACTTAA CATGTCATTC CAACATAACT GGAATGATTG TACAGTTAGA
7651 TCAACCATGG AATTCCACAG GTGAAAATAC ACTTAGACCA GTAGGGGGAG
7701 ATATGAAAGA TATATGGAGA ACTAAATTGT ACAACTACAA AGTAGTACAG
7751 ATAAAACCTT TTAGTGTAGC ACCTACAAAA ATGTCAAGAC CAATAATAAA
7801 CATTACACACC CCTCACAGGG AAAAAAGAGC AGTAGGATTG GGAATGCTAT
7851 TCTTGGGGGT GCTAAGTGCA GCAGGTAGCA CTATGGGCGC AGCGGCAACA
7901 GCGCTGACGG TACGGACCCA CAGTGTACTG AAGGGTATAG TGCAACAGCA
7951 GGACAAACCTG CTGAGAGCGA TACAGGCCA GCAACACTTG CTGAGGTTAT

FIG. 4-6

8001 CTGTATGGGG TATTAGACAA CTCCGAGCTC GCCTGCAAGC CTTAGAAACC
8051 CTTATACAGA ATCAGCAACG CCTAAACCTA TGGGGCTGTA AAGGAAAACT
8101 AATCTGTTAC ACATCAGTAA AATGGAACAC ATCATGGTCA GGAAGATATA
8151 ATGATGACAG TATTGGGAC AACCTTACAT GGCAGCAATG GGACCAACAC
8201 ATAAACAATG TAAGCTCCAT TATATATGAT GAAATACAAG CAGCACAAAGA
8251 CCAACAGGAA AAGAATGTAA AAGCATTGTT GGAGCTAGAT GAATGGGCCT
8301 CTCTTGAA TTGGTTTGAC ATAACCAAAT GGTTGTGGTA TATAAAAATA
8351 GCTATAATCA TAGTGGGAGC ACTAATAGGT ATAAGAGTTA TTATGATAAT
8401 ACTTAATCTA GTGAAGAACAA TTAGGCAGGG ATATCAACCC CTCTCGTTGC
8451 AGATCCCTGT CCCACACCAG CAGGAAGCAG AAACGCCAGG AAGAACAGGA
8501 GAAGAAGGTG GAGAAGGAGA CAGGCCAAG TGGACAGCCT TGCCACCAGG
8551 ATTCTTGCAA CAGTTGTACA CGGATCTCAG GACAATAATC TTGTGGACTT
8601 ACCACCTCTT GAGCAACTTA ATATCAGGGA TCCGGAGGCT GATCGACTAC
8651 CTGGGACTGG GACTGTGGAT CCTGGGACAA AAGACAATTG AAGCTTGTAG
8701 ACTTTGTGGA GCTGTAATGC AATATTGGCT ACAAGAATTG AAAAATAGTG
8751 CTACAAACCT GCTTGATACT ATTGCAGTGT CAGTTGCCAA TTGGACTGAC
8801 GGCATCATCT TAGGTCTACA AAGAATAGGA CAAGGATTCC TTCACATCCC
8851 AAGAAGAATT AGACAAGGTG CAGAAAGAAT CTTAGTGTAA CATGGGAAT
8901 GCATGGAGCA AAAGCAAATT TGCAGGATGG TCAGAAGTAA GAGATAGAAT
8951 GAGACGATCC TCCTCTGATC CTCAACAAACC ATGTGCACCT GGAGTAGGAG
9001 CTGTCTCCAG GGAGTTAGCA ACTAGAGGGG GAATATCAAG TTCCCACACT
9051 CCTCAAAACA ATGCAGCCCT TGCATTCTA GACAGCCACA AAGATGAGGA
9101 TGTAGGCTTC CCAGTAAGAC CTCAAGTGCC TCTAAGGCCA ATGACCTTA
9151 AAGCAGCCTT TGACCTCAGC TTCTTTTAA AAGAAAAGGG AGGACTGGAT
9201 GGGTTAATT ACTCCCATAA GAGAGCAGAA ATCCTGGATC TCTGGATATA
9251 TCACACTCAG GGATTCTTCC CTGATTGGCA GTGTTACACA CCGGGACCAG
9301 GACCTAGATT CCCACTGACA TTTGGATGGT TGTTTAAACT GGTACCAGTG

FIG. 4-7

9351 TCAGCAGAAG AGGCAGAGAG ACTGGGTAAT ACAAAATGAAG ATGCTAGTCT
9401 TCTACATCCA GCTTGTAATC ATGGAGCTGA GGATGCACAC GGGGAGATAAC
9451 TAAAATGGCA GTTTGATAGA TCATTAGGCT TAACACATAT AGCCCTGCAA
9501 AAGCACCCAG AGCTCTTCCC CAAGTAACTG AACTGCGGG ACTTTCCAGA
9551 CTGCTGACAC TGCGGGACT TTCCAGCGTG GGAGGGATAA GGGGCGGTTC
9601 GGGGAGTGGC TAACCCTCAG ATGCTGCATA TAAGCAGCTG CTTTCCGCTT
9651 GTACCGGGTC TTAGTTAGAG GACCAGGTCT GAGCCCGGGA GCTCCCTGGC
9701 CTCTAGCTGA ACCCGCTGCT TAACGCTCAA TAAAGCTTGC CTTGAGTGAG
9751 AAGCAGTGTG TGCTCATCTG TTCAACCCTG GTGTCTAGAG ATC

FIG. 4-8

STRATEGY FOR PCR AMPLIFICATION
CLONING AND SEQUENCING:

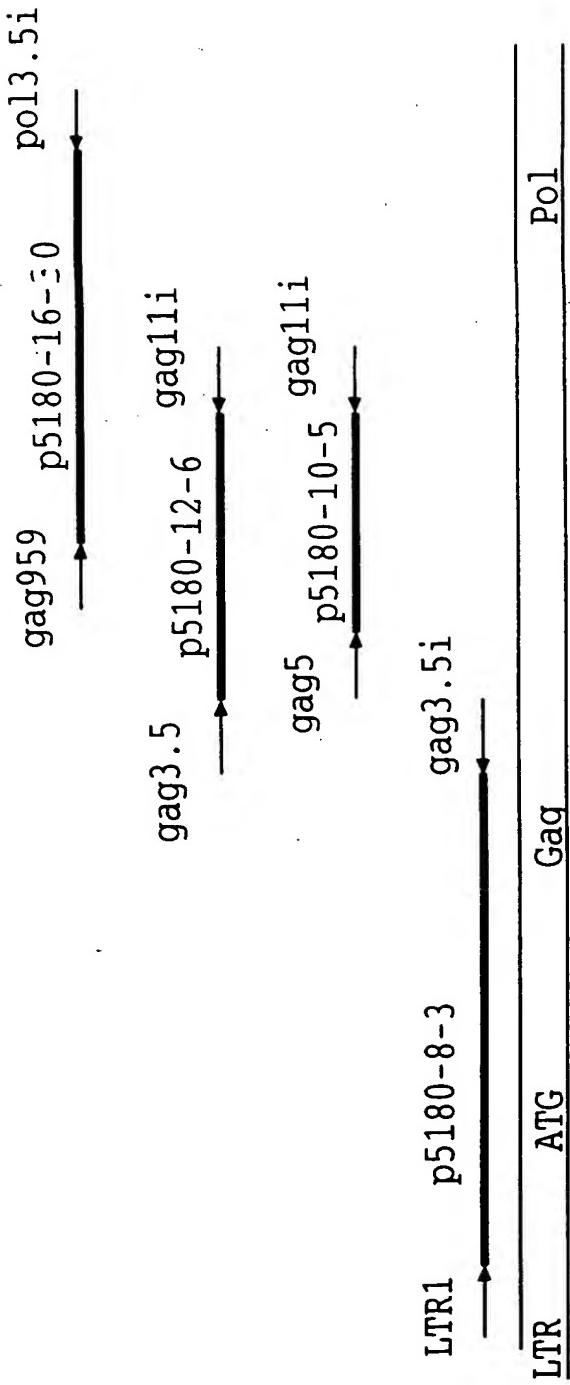


FIG. 5

(SEQUENCE ID NO. 57 + 58)

MvP5180

| | | |
|------|--|------|
| 685 | AAACCTCCGACGCAACGGGCTCGGCTTAGCGGAGTGCACCTGCTAAGAGG | 734 |
| 1 | aaacctccaacgcaacggctcggttagcgagtgcacctgctaagagg | 50 |
| 735 | CGAGAGGAACTCACAGAGGGTGAGTAAATTGCTGGCGGTGGCCAGACC | 784 |
| 51 | cgagaggaactcacaagagggtgagtaaattgctggcggtggccagacc | 100 |
| 785 | TAGGGGAAGGGCGAAGTCCCTAGGGGAGGAAGATGGGTGCGAGAGCGTCT | 834 |
| 101 | taggggaaggcgaagtccctaggggaggaagatgggtgcgagacggct | 150 |
| 835 | GTGTTGACAGGGAGTAAATTGGATGCATGGAACGAATTAGGTTAAGGCC | 884 |
| 151 | gtgttgcacaggagtaaattggatgcattggaaacgaatttaggttaaggcc | 200 |
| 885 | AGGATCTAAAAGGCATATAGGCTAAAACATTAGTATGGCAAGCAGGG | 934 |
| 201 | aggatctaaaaggcatataggctaaaAcatttagtatggcaagcaggg | 200 |
| 935 | AGCTGGAAAGATA CGCATGTAATCCTGGTCTATTAGAAACTGCAGAAGGT | 984 |
| 251 | agctggaaagatacgcataatcctggctactagaaactgcagaaggt | 300 |
| 985 | ACTGAGCAA CTGCTACAGCAGTTAGAGCCAGCTCTCAAGACAGGGTCAGA | 1034 |
| 301 | actgaacaactgctacagcagttagagccagctctcaagacagggcaga | 350 |
| 1035 | GGACCTGAAATCTCTGGAACGCAATAGCAGTACTCTGGTGC GTTCACA | 1084 |
| 351 | ggacctgaaatccctctggAACGCAATAGCAGTACTCTGGTGC GTTCACA | 400 |
| 1085 | ACAGATTGACATCCGAGATAACACAGCAGGCAATACAAAAGTTAAAGGAA | 1134 |
| 401 | acagattgacatccgagatacacagcaggcaataaaaaagttaaaggaa | 450 |
| 1135 | GTAATGGCAAGCAGGAAGTCTGCAGAGGCCGCTAAGGAAGAAACAAGCCC | 1184 |
| 451 | gtaatggcaagcaggaagtctgcagaggcccgtaaaggaagaaacaagctc | 500 |

FIG.6-1

| | | |
|------|---|------|
| 1185 | TAGGCAGACAAGTCAAAATTACCTATAGTAACAAATGCACAGGGACAAA | 1234 |
| 501 | aaggcaggcaagtcaaaattaccctatagtaacaaatgcacagggacaaa | 550 |
| 1235 | TGGTACATCAAGCCATCTCCCCCAGGACTTAAATGCATGGTAAAGGCA | 1284 |
| 551 | tggtacatcaagccatatccccttaggacttaaatgcatggtaaaggca | 600 |
| 1285 | GTTAGAAGAGAAGGCCTTAACCCTGAAATTATTCTATGTTATGGCATT | 1334 |
| 601 | gtagaagaaaaggccttaaccctgaaattattcctatgttatggcatt | 650 |
| 1335 | ATCAGAAGGGGCTGTCCCCTATGATATCAATACCATGCTGAATGCCATAG | 1384 |
| 651 | atcagaaggggctgtcccctatgatatcaataccatgctgaatgccatag | 700 |
| 1385 | GGGGACACCAAGGGGCTTACAAGTGTTGAAGGAAGTAATCAATGAGGAA | 1434 |
| 701 | ggggacaccaaggggcttacaagtgttgaaggaagtaatcaatgaggaa | 750 |
| 1435 | GCAGCAGAACGGATAGAACTCATCCACCAGCAATGGGCCGTTACCACC | 1484 |
| 751 | gcagcagattggatagaactcatccaccagcaatggggccgttaccacc | 800 |
| 1485 | AGGGCAGATAAGGAACCAACAGGAAGTGACATTGCTGGAACAACTAGCA | 1534 |
| 801 | agggcagataagggAACCAACAGGAAGTgacattgttggAACAACTAGCA | 850 |
| 1535 | CACAGCAAGAGCAAATTATGACTACTAGAGGGGCTAACTCTATCCCA | 1584 |
| 851 | cacagcaagagcaaattatgactactagaggggctaactctatccca | 900 |
| 1585 | GTAGGAGACATCTATAGAAAATGGATAGTGCTAGGACTAAACAAATGGT | 1634 |
| 901 | gtaggagacatctatagaaaatggatagtgtttaggactaaacaaaatggt | 950 |
| 1635 | AAAAATGTACAGTCCAGTGAGCATCTTAGATATTAGGCAGGGACAAAG | 1684 |
| 951 | aaaaatgtacagtccagtgagcatcttagatattaggcagggacaaaag | 1000 |

FIG. 6-2

| | | |
|------|--|------|
| 1685 | AACCATTCAAGAGATTATGTAGATCGGTTTACAAAACATTAAGAGCTGAG | 1734 |
| 1001 | aaccattcagagattatgttagatcggtttacaaaacattaagagctgag | 1050 |
| 1735 | CAAGCTACTCAAGAAGTAAAGAATTGGATGACAGAACCTTGCTTGTCA | 1784 |
| 1051 | caagctactcaagaagtaaagaattggatgacagaaaaccctcggttca | 1100 |
| 1785 | GAATTCAAACCCAGATTGTAAACAAATTCTGAAAGCATTAGGACCAGAAG | 1834 |
| 1101 | gaattcaaaccagattgtaaacaaattctgaaagcattaggaccaggag | 1150 |
| 1835 | CTACTTTAGAAGAAATGATGGTAGCCTGTCAAGGAGTAGGAGGGCCAAC | 1884 |
| 1151 | ctactttagaagaaatgatggtagcctgtcaaggagttaggaggggccaact | 1200 |
| 1885 | CACAAGGCCAAAATACTAGCAGAAGCAATGGCTTCTGCCAGCAAGATT | 1934 |
| 1201 | cacaaggcaaaaatacttagcagaagcaatggcttctgccagcaagattt | 1250 |
| 1935 | AAAAGGAGGATACACAGCAGTATTCATGCAAAGAGGGCAGAATCCAAATA | 1984 |
| 1251 | aaagggaggatacacagcagtattcatgcaaagagggcagaatccaaata | 1300 |
| 1985 | GAAAAGGGCCCATAAAATGCTTCATTGTGGAAAAGAGGGACATATAGCA | 2034 |
| 1301 | gaaaagggcctataaaatgtttcaattgtggaaaagagggacatatagca | 1350 |
| 2035 | AAAAACTGTCGAGCACCTAGAAAAAGGGGTGCTGGAAATGTGGACAGGA | 2084 |
| 1351 | aaaaactgtcgagcacctagaagaagggttactggaaatgtggacagga | 1400 |
| 2085 | AGGTCAACCAATGAAAGATTGCAAAAATGGAAGACAGGCACATTAG | 2134 |
| 1401 | aggtcaccaaatgaaagattgcaaaaatggaagacaggctaatttttag | 1450 |
| 2135 | GGAAGTACTGGCCTCCGGGGGGCACGAGGCCAGGCAATTATGTGCAGAAA | 2184 |
| 1451 | ggaagtactggcctccggggggcacgaggccagccaattatgtgcagaaa | 1500 |

FIG. 6-3

2185 CAAGTGTCCCCATCAGCCCCACCAATGGAGGAGGCAGTGAAGGAACAAGA 2234
1501 caagtgtccccatcagccccaccaatggaggaggcagtgaaggaacaaga 1550

2235 GAATCAGAGTCAGAAGGGGGATCAGGAAGAGCTGTACCCATTGCCTCCC 2284
1551 gaatcagaatcaaaagggggatcagaagagctgtaccattgcctccc 1600

2285 TCAAATCCCTCTTGGGACAGACCAATAGTCACAGCAAAGGTGGGGTC 2334
1601 tcaaatccctcttggacagaccaatagtcacagcaaagggtggggcc 1650

2335 ATCTATGTGAGGCTTACTGGATAACAGGGGCAGATGATACTAGTATTAAAT 2384
1651 atctatgtgaggcttactggataacaggggcagatgatactagttaaaat 1700

2385 AACATACAATTAGAAGGAAGATGGACACCAAAA 2417 (SEQ ID NO:57)
1701 aacatacaattagaaggaagatggacacccaaa 1733 (SEQ ID NO:58)

FIG. 6-4

MvP5180 MGARASVLTGSKLDAWERIRLRPGSKKAYRLKHLVWASRELERYACNPGL
PCR MGARRSVLTGSKLDAWERIRLRPGSKKAYRLKHLVWASRELERYAYNPGL

LETAEGTEOLLOOLEPALKTGSEDLKSLWNNAIAVLWCVHNRFDIRDTQOA
LETAEGTEQLLQQLEPALKTGSEDLKSLWNNAIAVLWCVHNRFDIRDTQQA

IQKLKEVMASRKSAEAAKEETSPROTSONYPIVTNAQGQMVKQAIISPRTL
IQKLKEVMASRKSAEAAKEETSSSTQASQNYPIVTNAQGQMVKQAIISPRTL

NAWVKAVEEKAFNPEIIPMFMALSEGAVPYDINTMLNAIGGHOGALQVLK
NAWVKAVEEKAFNPEIIPMFMALSEGAVPYDINTMLNAIGGHOGALQVLK

EVINEEAAEWDRTHPPAMGPLPPGQIREPTGSDIAGTTSTQQEQIIWTTR
EVINEEAADWDRTHPPAMGPLPPGQIREPTGSDIAGTTSTQQEQIIWTTR

GANSIPVGDIYRKWIVLGLNMVKMYS PVSILD IROGPKEPFRDYVDRFY
GANSIPVGDIYRKWIVLGLNMVKMYS PVSILD IROGPKEPFRDYVDRFY

KTLRAEQATOEVKNWMTETLLVONSNPDCKOILKALGPEATLEEMMVACO
KTLRAEQATQEVKNWMTETLVVQNSNPDCQILKALGPATLEEMMVACQ

GVGGPTHAKILAELMASAQODLKGGYTAVFMQRGQNPNRKGPIKCFNCG
GVGGPTHAKILAELMASAQODLKGGYTAVFMQRGQNPNRKGPIKCFNCG

KEGHIAKNCRAPRKRGCKGOEGHOMKDCKNGRQANFLGKYWPPGGTRP
KEGHIAKNCRAPRRGYWKCGQEGHQMKDCKNGRQANFLGKYWPPGGTRP

GNYVOKQVSPSAPPMEAVKEQENOSOKGDQEELYPPFASLKSLSFGTDO (SEQ ID NO:59)
ANYVQKQVSPSAPPMEAVKEQENQNQKGDQEELYPPFASLKSLSFGTDO (SEQ ID NO:60)

FIG. 7

HIV - 1 (LAI)

(SEQ ID NO:66)

HIV - 5180

(SEQ ID NO:54)

HIV - 2 (ROD)

(SEQ ID NO:67)

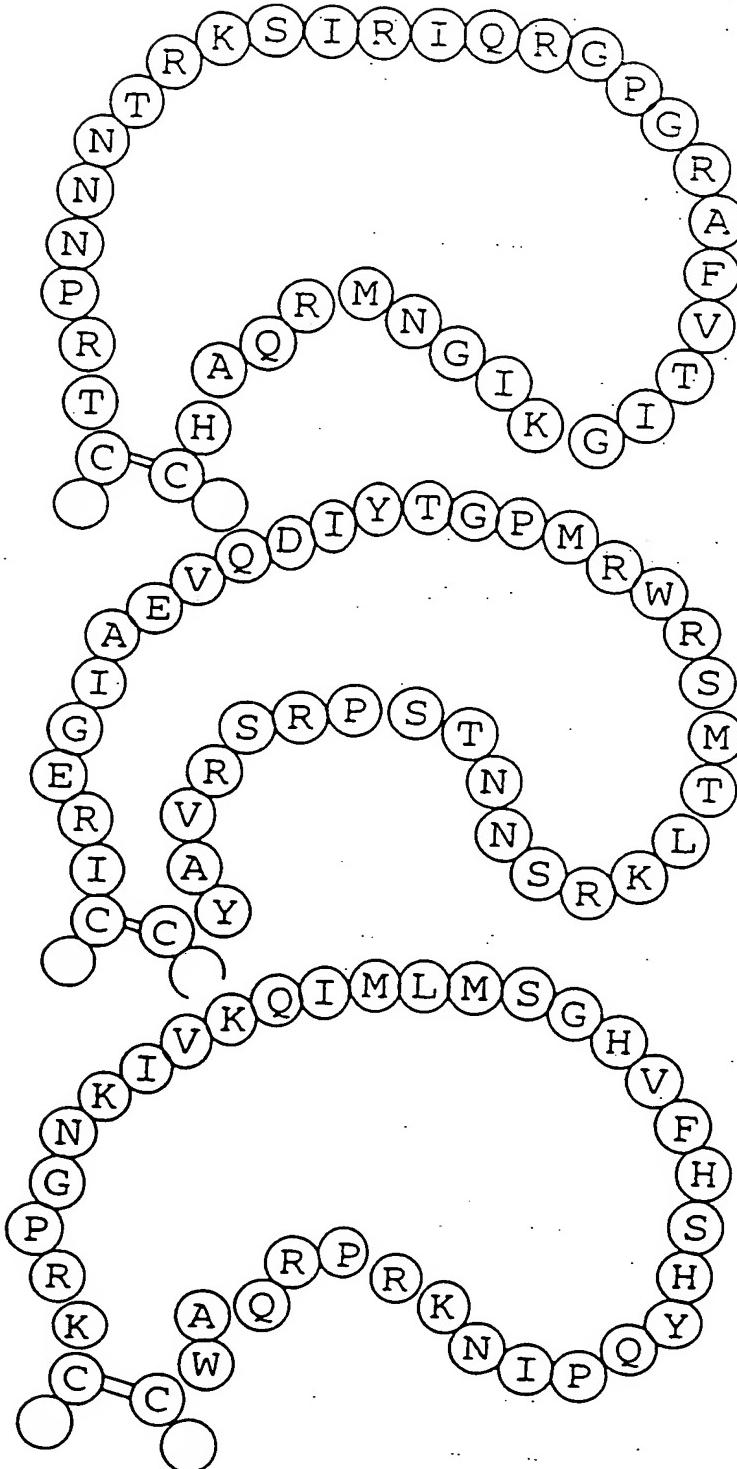


FIG. 8